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# GENERAL ASPECTS OF RELATIVE CLAUSE FORMATION*

Arthur Schwartz

## ABSTRACT

The paper proposes, on the basis of a study of relative clause and WH-interrogative constructions, to reflect the time-oriented character of the sentence by replacing neutral expressions like "#" with explicit time references like "beginning" and "end". These boundaries are to be universally associated with all phrase-types since, apparently, no major type (S, NP, VP) is symmetrically structured. A subsidiary proposal calls for a view of "underlying representation" which would, even under the assumption that all material relevant to semantic interpretation appears in that representation, relax an "all and only" requirement to an "all" so as to admit structurally essential but semantically empty or redundant material. This "material" might include structural conditions (e.g., phrase-structure relations) which are not universal, as well as constituents predictable from other elements.

The evidence in support of these proposals arises from (i) the exclusion of WH-relative pronouns in relative clauses of the type $[_{NP}{}^{S}\ N]$, and their obligatory clause-initial position in relative clauses of the type $[_{NP}{}^{N}\ S]$; and (ii) the inadmissability of a pronominal "introducer" in the first type (the prospective clause) as opposed to the admissability of such an introducer in the second (the retrospective clause). The distinct character of the two types can be explained in terms of time-orientation, as that factor reveals itself in WH-interrogatives. In such questions, the real-time relationship of Antecedent-WH-Predicate is required: the critical condition is that the WH-form anticipate the predicate in order to receive the interrogative force and preclude questioning of the predicate. These relationships, motivated in an interrogative context, are taken over in a superficially similar relative context: while Antecedent-Pro-Predicate are elements of the relative construction, the stipulation that the WH+Pro form precede the predicate is without functional value. The relative introducer (e.g., ENGLISH <u>that</u>) is found only in the retrospective type because it is a recapitulatory pronoun with the function of "nominalizing" a clause in apposition to itself. As in the prospective type, it is the temporal slant that determines the distinct properties of the clause-type.

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It is well known that relative pronouns sometimes take the form of interrogative pronouns. Why this development should take place in only certain kinds of relative clause is obscure. Why the development should take place at all is still more obscure. In the search for an explanation, we will be led to the major thesis of this study: that the S-phrase, at any level of representation, is to be given a time-slant which will express its essential asymmetry. But we shall be led to other proposals which, perhaps not so dramatically, entail certain consequences for our conception of an "underlying representation": in particular, that it may have aspects of structure which are independent of, and irrelevant to, semantic interpretation.

I

Given the linear character of the sentence, it is not surprising that most languages make a choice about the basic position of the relative clause with respect to the head noun which it modifies. There are, of course, qualifications to this general observation -- such as, that certain predicates (perhaps "stative" or "adjectival") may, under certain conditions, appear "on the other side" of the head. But it seems to be true that we find a basic arrangement of either S N or N S (that is, one or the other) in most languages.

Languages like MANDARIN, JAPANESE, KOREAN, TELUGU, TURKISH, AMHARIC and BASQUE manifest the relative clause to the left of the head. For the most part, the relativized nominal in the clause is suppressed; occasionally, it may surface as a personal pronoun: thus, schematically:

$[_N [_S \underline{\text{people like}} \ \emptyset] \ \underline{\text{boy}}]$ "the boy the people like"

$[_N [_S \underline{\text{people like him}_i}] \ \underline{\text{boy}_i}]$

Occasionally also, a particle marking the subordinate status of the clause may appear: typically, in these languages, it appears between the clause

and the head; but it may also precede the clause (e.g., AMHARIC yə-). In some languages, the verb is given a special "relative" suffix. Beyond these signals, there is little else that marks the clause -- with the exception of the intonation contour: and this feature usually binds the clause rather "intimately" to the head (i.e., it is unusual to pause between the relative and the head).

When the clause follows the head, a number of variations seem to be possible: these are schematized below, along with an indication of some of the languages in which the type is found:

| | | |
|---|---|---|
| (i) | $N[_S \ldots \emptyset \ldots]$ | DYIRBAL |
| (ii) | N that $[_S \ldots \emptyset \ldots]$ | EWE, YUROK, PASHTO |
| (iii) | N that $[_S \ldots PRO \ldots]$ | HEBREW, ARABIC |
| (iv) | $N[_S WH \ldots.]$ | LATIN and derivatives |
| (v) | N that $[_S WH \ldots.]$ | INDONESIAN, HUNGARIAN |

Type (i) is relatively uncommon, it seems to me: the DYIRBAL case is even more restricted than indicated since it is only the nominative that can be relativized (reminiscent of ENGLISH people paying money or people being paid money but not *money people paying) (Dixon 1969). Type (ii) shows an introductory element, typically associable with a pronominal root, which may be either invariant (ENGLISH that) or oriented toward the head (MAASAI). In the latter case, it at first seems that whether the pronominal element is really outside the clause is indeterminate since its gender and/or number agreement with the head could just as well be a residue of the "lower" nominal in the clause: however, the critical fact in deciding these alternatives is that this clause-initial pronominal element is not case-inflected and cannot be the object of a preposition. Type (iii) is only a variant of (ii) in that (iii) allows the accusative pronoun to surface, although it may be optionally suppressed. Both types allow the more oblique cases to be relativizable as surface pronouns: e.g., the house that we live in-it. But this pronominal

reflex of the oblique cases is true also of the relative clause that precedes the head: e.g., Mandarin wo gei ta shu de haidz (literally I give him book Prt boy) 'the boy I gave the book'.

Type (iv) is quite different from (i-iii) in that it has no invariant introductory element, but manifests an interrogative pronominal instead. This pronoun can be distinguished from the invariant one by its ability to show case-relations relevant to the clause. It can, in addition, show gender, animateness, humanness, number, etc. -- as does the introductory pronoun occasionally. The two pronominal forms are often confused (cf. the traditional long-standing classification of that, who, which, etc. as the "relative pronouns" of ENGLISH) because both seem to stand in clause-initial position. That they are distinct is clearly evident in languages of type (v) which admit both -- e.g., INDONESIAN:

orang yang kepada siapa saya memberikan buku ini
man one to who I give book this
'the man to whom I gave this book'

cf. saya memberikan buku ini kepada orang itu
I give book this to man that
'I give this book to that man'

where yang is the invariant pre-clause pronominal, and siapa the interrogative from within the clause (showing its case-relation kepada). This type is rare, but perhaps not as odd as first appears: e.g., HUNGARIAN relative pronouns like aki might just as well be analyzed as a demonstrative element outside the clause (N az [$_S$ ... ki ... ]) as a definite article within the clause (N [$_S$ ... az+ki ... ]) -- in the latter view taking it to be the kind of definitization found expressed in FRENCH and SPANISH e.g., la maison dans la quelle ... . The fact that the verb of the relative clause does not show the usual "definite conjugation" is apparently due -- not to the indefiniteness of the relative pronoun (see Kuroda 1968 on the arguments for definiteness) -- but to a condition

on superficial arrangement of nominal and verb. Still, there is more reason than not to view aki as from az [$_S$...ki...], since historically the a- perhaps derives from az as in this function (E. Moravcsik, personal communication). In this respect, az and a- are parallel to ENGLISH demonstrative that and "relative" that, as in that that pleases us.

By way of summary, we note the following: in clauses that are to the left of the head, no WH-forms appear; there is no special movement of the relativized noun (if indeed it surfaces as a pronoun); there is no introductory pronominal element (the that of types (ii), (iii), and (v) ) nor is there a concluding pronominal element which would intervene between the clause and the head noun. In contrast, clauses that fall to the right of the head may manifest an introductory pronominal element (that) which respects the head but not the clause, or a clause-internal WH-pronominal, or both. If a WH-form appears, it must appear in clause-initial position.

In the languages referred to up to this point, the relative clause has been restricted in position: for each language, we assumed the clause is either to the left or to the right. But would the distinct character of the two types of clause be obscured if one and the same language allowed both types? What would we say if it turned out that even when one and the same language allows a clause to precede the head, that same clause-type cannot follow the head? As it turns out, a clause type that precedes the head can sometimes follow it: e.g., in MANDARIN

(i) (a) wo you maile shu de pengyou
I have bought book friend
'I have a friend who bought books'

(b) wo you pengyou maile shu
I have friend bought book
'I have a friend who bought books'

(ii) (a) dzai Chicago you wo syihwan de lyugwan
in Chicago be I like hotel
'there are hotels in Chicago I like'

(b) dzai Chicago you lyugwan wo syihwan
in Chicago be hotel I like
'there are hotels in Chicago I like'

It isn't obvious why the alternation around the head is restricted to predication build on the existential-locative-possessive you. QUECHUA also has a clause type which may precede the head as well as follow it, as does GERMAN with its familiar "participial" construction (although there is a by no means trivial constraint on word order linked to the position of the clause). It would appear, then, that one can only posit the basic position of the clause, and then (in general terms) allow it to shift "to the other side" of the head.

But this formulation is too generous since it does indeed turn out that a clause positioned to the right of the head and manifesting a WH-pronoun formation cannot appear to the left of the head as an alternant. German supports this restriction, as does QUECHUA -- so that the two clause types cannot be regarded equally: $[_S \ldots.]$ N can sometimes alternate with N $[_S \ldots.]$, but N $[_S$WH$\ldots.]$ never alternates with $[_S$WH $\ldots.]$ N or $[_S \ldots$ WH] N. Our general hypothesis is thus born out: even when a language has the option of placing the clause basically before or after the head noun, it must choose the same type of clause as languages which manifest only a single type. Thus, universally, the types are defined by their position vis-à-vis the head.

We turn now to a number of apparent counter-examples to the generalizations offered above. First, what shall we make of languages that require a relative pronoun (not personal) to be in clause-initial position but do not require that pronoun to be of the interrogative set? For example, in GERMAN:

(i) (a) die Kinder mit denen er sprach
the children with whom he spoke
(a') *die Kinder er sprach mit denen
(b) die Freunde die ich besuchte
the friends whom I visited
(b') *die Freunde ich besuchte die

the pronouns denen and die are from the demonstrative set, show case-relations, and yet are obligatorily in clause-initial position. It seems to me that it is perhaps not coincidental that just such a language also allows the variants:

(ii) (a) die Kinder mit welchen er sprach
the children with whom he spoke
(a') *die Kinder er sprach mit welchen
(b) die Freunde welche ich besuchte
the friends whom I visited
(b') *die Freunde ich besuchte welche

which show the interrogative relatives welchen, welche behaving as expected. To some extent, DUTCH shows the same development in a more striking way:

(a) hij is een dichter over wiens werk het laatste woord nog niet gezegd is.
he is a poet about whose work the last word not yet said is
'He is a poet about whose work the last word has not yet been said'
(b) hij is een dichter over wie z'n werk het laatste woord....
he is a poet about who his work the last word ....
'He is a poet about whose work the last work ...'
(c) de man die z'n zaken ik beharting woont in Parijs
the man that his business I take-care-of lives in Paris
'The man whose business I take care of lives in Paris.'

Examples (b, c) -- cf. also Kruisinga (1924: 106-7) -- perhaps do not represent written usage.[2] But it is nevertheless true that colloquially this stage of the language requires personal genitival pronouns (z'n in (b, c)) to be treated "as though" they were interrogative pronouns (wiens in (a)): that is to say, the type N that [$_S$ ...PRO...] was ungrammatical. As was indicated on page three, this type (iii) is tolerated in some languages; but of course, those languages do not have WH-pronominal forms in the relative clause. Hence, it is not unreasonable to suppose that the obligatory fronting of demonstrative (GERMAN) or personal (DUTCH) pronouns is due to the overriding consideration of the interrogative-relative formation. Note that, from a logical point of view, a competition between N that [$_S$ ...PRO...] and N [$_S$WH....] could just as easily be "resolved" in the uniformity of a clause-type like N that [$_S$...WH...] or N [$_S$...WH...). The DUTCH and GERMAN "counterexamples" are therefore not to be minimized as critical evidence in support of our first set of observations about the behavior of the interrogative relative pronoun.

Second, what shall we make of a language that manifests what appears to be the type [$_S$...WH...] N? This type should not be possible, given the above generalizations. Yet TELUGU has constructions of the form

(a) e kukkanaite a pilla tannindo, $\left\{\begin{matrix}\text{a kukka}\\ \text{adi}\end{matrix}\right\}$ i gadilo undi

WH dog ever TH girl kicked $\left\{\begin{matrix}\text{TH dog}\\ \text{it}\end{matrix}\right\}$ TH room-in is

'whatever dog that girl kicked, $\left\{\begin{matrix}\text{that dog}\\ \text{it}\end{matrix}\right\}$ is in this room'

where e is clearly a WH-interrogative pronominal (kukkanaite is

---

[2] From some native speakers of contemporary DUTCH, I have the following: the WH-form is preferred to the die/dat + Gen Pro, and the form for the feminine is given as die der rather than die 'er; die z'n remains as reported by Kruisinga. The older informants (mid-forties, not as strongly influenced by ENGLISH as their Americanized daughters aged 19 and 20) regard the die/dat-formation as "poor" DUTCH, and do not recognize die 'er as possible.

analyzable as kukka+ni+aite "dog + accusative marker +ever"), a and i are "that" and "this", respectively, and adi itself is essentially "that-one" in contrast to idi "this-one". This construction alternates with the following:

(b) a pilla tannina kukka i gadilo undi

TH girl kicked dog TH room-in is

'that dog a girl kicked is in this room'
'a dog that girl kicked is in this room'

As the translations for the (b)-type indicate, a number of not inconsiderable differences distinguish the two types of formation: type (b) allows the demonstrative to initiate the whole nominal phrase -- THAT girl kicked DOG, as it were, in which THAT is taken with DOG. This position of the demonstrative is impossible in the (a)-type: *a e kukkanaite pilla tannindo kukka... "THAT whatever dog (a) girl kicked DOG...". Moreover, the demonstrative associated with the head need not be a "that" in the (b)-type: i pilla tannina kukka... "THIS girl kicked DOG...". In the (a)-type, the demonstrative associated with the head must be some form of a: *e kukkanaite pilla tannindo, i kukka...; *e kukkanaite pilla tannindo, idi... . In fact, in the (a) type, more than one e-nominal ("WH-nominal") may occur as long as it can be matched with an a-nominal ("THAT-nominal") in the main clause:

e kukkanaite i pilla eppudu ekkada tannindo, {a kukka / adi} akkada appudu....

WH dog ever girl WH-time WH-place kick, {TH dog / it} TH-place TH-time...

'what dog (at)what time (in) what place this girl kicked, that dog/it (in) that piace (at) that time....'

vhereas the (b)-type is limited to one co-referential relation (with the exception of conjoined nominals: "THAT girl kicked DOG, CAT", that is, 'that dog and cat the girl kicked'). Finally, the (b)-type can never be separated from the head in contrast to the (a)-type:

e kukkanaite pilla tannirdo, memu kuda dani tannemu
WH dog ever girl kick we also it kicked
'whatever dog the girl kicked, we also kicked it'

In other words, intonational break (after -o) aside, all the evidence converges to support the intuitive sense of the (a)-type as a correlative construction which is quite distinct from the ordinary relative.

What I have been at some pains to show is that [[$_S$...WH...] N] can not emerge as a surface form. (I leave open the possibility of some more abstract conception of the relative clause "starting" from a correlative association which then has a choice of routes to the surface depending on just such aspects of the embedding as are under consideration here (Annear 1965).) This non-constituency of the anticipatory WH-relative is even clearer in our final counter-example, that from BAMBARA:

(a) ne ye so min ye, tye ye o san
I Pst horse WH see man Pst TH buy
'which horse I saw, the man that-one bought'=
'the man bought the horse that I saw'

But according to Bird (1968: 115ff.), the WH-clause can remain in its embedded position: that is --

(b) tye ye ne ye so min ye san
man Pst I Pst horse WH see buy
'the man bought the horse that I saw'

Actually, before we admit this case from Bambara as a counter-example, it must be demonstrated that min is from the interrogative set. It is not altogether clear that it is, although some facts point in that direction: for example, there is a form mín "where" (tonally different) used in questions; and there is a form mun "what" which serves as an interrogative adjective and pronoun. But min itself is also used as the demonstrative "this" (Bird 1968: 73) alongside nin "this": the difference between the

two apparently is that min can serve as a pronoun whereas nin can not.

But assuming that min is from the interrogative set, would the BAMBARA facts really contradict our generalizations? Note the two types: when the MIN-clause precedes the head, there is no constituency relation and when the MIN-clause remains in position, the head does not surface -- schematically:

(a) $[_S [_S \ldots WH \ldots], \ldots TH \ldots]$

(b) $[_S \ldots \emptyset [_S \ldots WH \ldots] \ldots]$

Here, then, we find a surprising set of facts: a relative clause which is positioned basically to the right of the head (putatively so on the basis of post-head status of the attributive adjective, and the non-restrictive relative), which manifests a WH-relative pronoun, and yet which allows the WH-pronoun to remain in position. Is it therefore an accident that, where the WH-pronoun is not required to move, the "antecedent" is missing? Whether or not the presence of the head has anything to do with the type of relative pronoun formation is really not clear: after all, many languages have "headless relatives" (of the type who steals my purse steals trash) which nevertheless, if based on WH-pronoun formation, evince the relative pronoun "out of position" at the front of the clause. But the BAMBARA case, it seems to me, cannot be totally unrelated to the general behavior of the post-head WH-relative type. I would like to postpone a more definite assessment of the counter-example to the end of this section of the paper.

At this point, we turn to WH-interrogatives and attempt to relate the behavior of WH-forms in that question-type to the behavior of WH-forms in the relative clause of type (b). As far as I can tell, the facts are straightforward: languages like GREEK, SAMOAN, SQUAMISH, and HEBREW demand that the WH-form be in clause-initial position; languages like BASQUE, JAPANESE, AMHARIC, and TURKISH do not. Generally

speaking, VSO languages require the movement; SOV languages do not. The SOV instances that deviate from this tendency (e.g., BASQUE with its "tendency" to front; QUECHUA with its obligatory fronting) can plausibly be accounted for in terms of SVO-influence (SPANISH, in the case of BASQUE and QUECHUA). SVO languages themselves show a much greater than chance frequency of obligatory WH-fronting. In short, the two major types of WH-interrogative are:

(a) $[_S$WH....?] universally so for VSO; nearly universal for SVO.

(b) $[_S$...WH...?] nearly universal for SOV.

The most striking gap in this distribution is the obligatory construction

(c) *$[_S$...WH?]

and it is this remarkable cross-linguistic "evasion" that must provide the point of departure for any explanation of WH-behavior in relative clauses.

When one considers interrogative types (a) and (b) with respect to the base order of constituents --

WH V ... ...
WH ... V ...
WH ... ... V

the most obvious correlation that emerges is that between the WH-element and the verb (generally, "predicate"). That is, the WH-form apparently is required to anticipate the predicate (i.e., precede it). This intervention, in VSO and SVO languages, is achieved most generally, and most simply, by WH-movement to clause-initial position; obviously, in SOV languages, the "anticipation" is already provided for by virtue of the clause-final position of the predicate. In this sense, then, an obligatory WH-fronting for a (strict) SOV language is, although admissible, pointless.

There is an interesting confirmation of this WH-predicate relation in TELUGU. A normal declarative might be of the form (i), in contrast to a "focussed" or cleft-declarative of form (ii):

(i) nenu i pilla-to čeppenu
I TH girl with spoke
'I spoke with this girl'

(ii) nenu čeppin(a)di i pilla-to
I spoke TH girl with
'It was with this girl I spoke'

In type (i), we find the normal SOV order (where O, of course, stands for a more general class of predicate complements), and agreement between nenu and čepp+enu; in type (ii), the čeppin(a)di form is invariant (e.g., the focussed nominal can be plural -- "with the girls" -- without affecting the form of čeppin(a)di) and the focussed nominal normally appears in clause-final position. To be sure, with sufficient emphasis, the focussed element need not stay in final position: thus we have variants like

(iii) (a) nenu tannin(a)di a kukke (kukke = kukka+e)
I kicked TH dog
'It was that dog I kicked'

(b) nenu a kukke tannin(a)di

(c) a kukke nenu tannin(a)di

but the order of (ii) and (iiia) is the normal one; so that, for this particular SOV language, the cleft construction allows final position in the clause to be preempted by an emphatic nominal. In view of this arrangement, it is noteworthy that the unemphatic form of questioning the focussed element is (iva), whereas (ivb) involves extra-emphasis:

(iv) (a) nenu ewari-to čeppin(a)di?
I who with spoke

(b) nenu čeppin(a)di ewari-to?

That is to say, the unmarked order for the cleft-declarative is SVOe whereas that for the WH-questioning of the emphatic nominal is S WHe V.[3] It would not be easy to construct a more persuasive instance in support of the hypothesis that WH-forms "naturally" come before V in questions.

After all this, a certain uneasiness remains since it is still not obvious why a WH-form should fall to the left of its predicate. In seeking an explanation, we might recall that WH-questions have very clear presuppositions: if we say What did Harry steal?, we are abbreviating for our own convenience a rather long (possibly infinite) series of either-or questions of the form did Harry steal this$_i$, or did he steal this$_j$, or did he steal this$_k$, or did he steal ....? (Kuroda 1969). That is, the respondent must identify the (pre-)supposedly stolen goods. In this sense, there is -- antecedent to the surface interrogation -- a referent in the discourse or situation to which the WH-form points and which it wants to know more about. Note that the temporal relation is simply between this (presupposed) antecedent and the actual utterance of the question; the temporal relation between either of these and the "internal" time of the predicate is irrelevant. We are dealing, then, with a real-time relationship between an antecedent and the WH-nominal pointing toward it. But all of this does not tell us why the WH-nominal must precede its predicate. The answer to this final question apparently must have recourse to this assumption: that under questioning, with nothing further said or specified, the element questioned is the predicate. That is,

Q: ... $N_1$ ... V ... $N_2$ ...

will normally be taken as a yes/no question with respect to V unless $N_1$ or $N_2$ are given some special status. We conclude, then, that WH-forms

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[3] The form ewari-to nenu c̄eppin(a)di? is also extra-emphatic simply because clause-initial position is not the usual place for to-nominals in general.

anticipate the predicate in interrogatives in order to forestall misinterpretation of the element being questioned.

By way of speculation, we might imagine a language that -- in spite of all that has been said up to now -- allows interrogatives of the form [$_S$... V... WH...?]. Given the cluster of hypotheses advanced to explain the behavior of WH-forms, we would have to say the following: if it is true that the WH-form anticipates the predicate in order to deflect the interrogative force from that element onto itself, then where the WH-form is allowed -- in the unmarked (non-echo or "incredulous" copying) form -- to follow the predicate it will be the case that there is no apparent interrogative force until the predicate has passed "as an assertion". For example, it seems that certain SVO languages like French and Mandarin have "natural" WH-questions of the form [$_S$... V... WH?]. The explanation we have developed in this paper would have to predict that, intonationally, the construction is neutral with respect to interrogation until the predicate has slipped by "unquestioned"; and that other signals of interrogation (inversion or particle-attachment) which might otherwise guide the interpretation toward the predicate will be missing.[4]

With these observations and assumptions about WH-interrogatives in hand, we return to the relative clause and the following enigmatic facts:

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[4] The so-called "yes/no question" transformation is clearly simply a signal of interrogation: when its effects appear in the WH-interrogative, it is still a signal without semantic content. Professor Irwin Corey, a comic who presents himself as an absent-minded and out-at-the-elbows explorer of life's deep mysteries, comes on stage in a dilapidated tuxedo and white tennis sneakers. Part of his routine runs as follows: "Sometimes someone in the audience asks me, 'Professor Corey, why do you wear sneakers?' And I tell them: 'That is a very difficult thing to answer: why is a word that has perplexed man for ages; it leads him to seek causes, and causes beyond causes; the pursuit of explanation involves man in some of the most profound issues of the order and meaning of the universe, as we know it. So that to reply to your question of why right now in just a few minutes would not be possible. As for the other question, "do I wear sneakers?", the answer is yes.' "

| | | | | | |
|---|---|---|---|---|---|
| (a) | (i) | *[$_S$... WH... ] N | (b) | (i) | *N [$_S$... WH...] (except BAMBARA) |
| | (ii) | *[$_S$... WH] N | | (ii) | *N [$_S$... WH] |
| | (iii) | *[$_S$WH...] N | | (iii) | N [$_S$WH... ] |

i.e., the complete exclusion of WH-forms from relative clause type (a), and the skewed distribution in type (b) which requires the WH-form to be in clause-initial position. Type (a) is directly explicable in terms of the requirement that the WH-form, in terms of real-time, occur after its antecedent; we must then conclude that WH-correlative constructions (as in the TELUGU WHAT..., THAT...) are not essentially based on an antecedent-pronoun relationship, but are instead closer to a reversal of the interrogative arrangement: in WH... TH... correlatives, the possibly infinite set of referents is first displayed ("whatever" is the typical distributive after which the selection of the answer ("that one") is pointed out in the main clause.

The facts of type (b) must be correlated with the principle already associated with the WH-interrogative: that the temporal order must be Antecedent-WH-Predicate. However, that same principle cannot be invoked for the relative clause since there is surely no "interrogation" in the same sense as that characterizing the WH-question. If there is an explanatory link between WH-relatives and WH-interrogatives, it seems to be that the former is parasitic on the latter: and this unidirectional relationship serves to explain why WH-relative clauses need have no special pronominal forms (other than the personal pronouns), and why, when non-personal forms show up, they almost always (but cf. the GERMAN demonstrative behaving "like the interrogative") are from the interrogative set. That is to say, when the relative formation mimics the WH-interrogative formation, it adopts -- without motivation -- the same mechanism and principles as the interrogative. In other words, the WH-relative pronoun must stand between the antecedent and the predicate even though the predicate is in no danger of being questioned.

Given the fact that the type [$_{NP}$ N S] is most characteristic of VSO and SVO languages, while [$_{NP}$ S N ] is most characteristic of SOV languages, the critical case is the SOV language that has [$_{NP}$ N S] for in this language there should be no interrogative with obligatory WH-fronting. Will such a language allow WH-relative pronouns which behave independently of the WH-interrogative? QUECHUA, as mentioned above, is essentially SOV -- but unfortunately has obligatory WH-fronting both in questions and in the [$_{NP}$ N S] type. To this extent, it observes the principle that the WH-relative of a language will always conform to the WH-interrogative of that language. But QUECHUA tells us nothing about the supposed incompatibility of

(i) an SOV language
(ii) with no WH-fronting in interrogatives
(iii) with [$_{NP}$ N S] as its sole relative clause type
(iv) with a WH-relative formation.

Bambara is the one instance I know of where there is no obligatory fronting of a WH-relative form (if min is in fact an interrogative form) in the type [$_{NP}$ N S]. Of course there is no discrepancy between WH-interrogatives and this supposed WH-relative; in this respect, BAMBARA - like QUECHUA -- is "regular". The question is whether the ruling character of WH-interrogation is sufficient to explain the ability of min-phrases to keep their positions. If this were the sole factor, then most SOV languages (having [$_{NP}$ S N] and no WH-movement) should tolerate [$_{S}$... WH ...] N. Since this possibility is entirely absent as a matter of fact, it would appear that the notion "antecedent" is the other critical factor.

We can sketch the interrogative situation as follows:

| ANTECEDENTS | INTERROGATIVE |
|---|---|
| (i) she saw a car. | Which car did she see? |
| (ii) that car .... | |

There are two items presupposed in the WH-question: (i) that she saw a car; (ii) that the person spoken to is somehow in a better position to get the information indicated by ... . Most grammarians call antecedent (i) the presupposition; antecedent (ii) is then really the element called the "antecedent" of the WH-element in the question. The WH-correlative puts the presupposition first: WHICHEVER car she saw (= "she saw some car") ....; and lets the antecedent follow: THAT car .... The WH-relative puts the presupposition after the antecedent: THAT car [$_S$ she saw WHICH car]... . This type with the definite head masks the antecedent circumstance (the presupposition); however, when the head noun is indefinite, as in a man who steals bread is hungry, then the antecedent character of the clause is clearer -- and, in fact, some grammarians have quite understandably interpreted the presupposition as a conditional: if some man steals bread, then that man is hungry (cf. WHICH man steals bread, THAT (man, one) is hungry).

A number of other aspects characteristic of these two clause-types can be elucidated by this temporal ordering of presupposition and antecedent, the most obvious one being the obligatory definiteness of the "antecedent" in correlatives (since it follows the WH-ed presupposition, and thus "answers the question"). We will return to some of these at the close of section III. At the moment, we are concerned with the exceptional nature of BAMBARA -- exceptional in that the non-correlative type [$_S$ we [$_S$ you WHICH man saw ] hired] "we hired the man you saw" requires no fronting of a supposed WH-relative. The interesting aspect of this relative formation is the absence of the normal juxtaposition of antecedent and clause. Assuming that the facts point to a basic [$_{NP}$ N [$_S$ ... WH ...]] configuration (e.g., BAMBARA has the order N Dem, and languages with post-head demonstratives never have the relative clause to the left of the head), and bearing in mind the universal conformity of the WH-relative to the WH-interrogative, we should find this evasion of a confrontation between

the antecedent and the fixed WH-element confirmatory. Either that, or -- on the basis of evidence like fini min ká fisa ni o yé (literally, cloth this is ...) 'this cloth is better than that' (Bird, 73) -- reject the interpretation of min as an interrogative formation. Further reason for suspecting min qua interrogative-relative can be found in clear interrogative phrases like mun bára "what work" where mun, according to Bird (41), "is operating as the first element in a genitive compound". It would be twisting things a bit to admit the interrogative order WH + head, on the one hand, head + DEM on the other, and then to interpred head + MIN as an "interrogative-like" form. In view of all this, it seems preferable to reject the BAMBARA case as a clear counter-example to the generalization *N [$_S$ ... WH...].

II

At the beginning of this discussion, we granted that the relative clause would have to fall basically to the left or to the right of the head since one inescapable aspect of sentence description is that it must be linearized at some level of representation. But we noticed that regardless of this language-specific choice, certain phenomena involving WH-forms had no regard for the notions "left" and "right". In particular, we were led to view the highly restricted character of WH-movement as an aspect of linguistic organization dictated solely by real-time relationships of antecedent, predicate, and question-word. Although this orientation might be interpreted as a very limited aspect of surface bias (and perhaps even of the pragmatics of interrogation and discourse), we saw the reflexes of WH-phenomena in the relative clause where real-time relationships were not nearly so clear. Is it possible, then, that the sentence at any level of representation is never free of this temporal orientation?

A number of well known constraints on sentence organization support

this possibility. Most easily associable with surface restrictions is that of pronominal reference. The large majority of cases can be accounted for in terms of two constructs: linearity and inclusion (Langacker 1969a). Inclusion (= hierarchy, subordination) is not a temporal notion, and so argues for the "abstract" character of sentence structuring. But linearity reintroduces the concatenative nature of speech, and so undercuts the "abstractness". Less obviously a surface phenomenon is the contrast in two types of extraposition: that man, we know him well as opposed to we know him well, that man. Going by the ENGLISH look of the construction, we might regard these as simple variants of the same operation. However, there are at least two languages in which the evidence clearly indicates that the constructions cannot be equated (these observations due to R. Hetzron and G. Ben-Horin respectively):

FRENCH: cet homme, nous lui avons donné le livre hier
that man, we him have given the book yesterday
'that man, we gave him the book yesterday'
nous lui avons donné le livre hier, à cet homme
we him have given the book yesterday, to that man
'we gave him the book yesterday, to that man'

The announcement at the beginning of the sentence cannot be à cet homme, and the sentence-final identification cannot be cet homme. So also:

HEBREW: ha-iš ha-ze, anaxnu natannu lo et ha-sefer etmol
the-man that, we gave him the-book yesterday
'that man, we gave him the book yesterday'
anaxnu natannu lo et ha-sefer etmol, la-iš ha-ze
we gave him the-book yesterday, to the-man that
'we gave him the book yesterday, to that man'

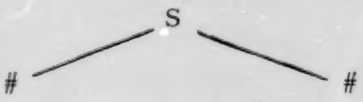
The first type cannot have la-iš ha-ze; the second cannot have ha-iš ha-ze. In short, case-marking cannot appear in the first type, but must appear in the second. This restriction is particularly mysterious since one would assume an "early" announcement to be the more informative one, while a "late" reminder would not have to be. I cannot supply an explanation for the difference here, but the example serves to indicate that the constructions are not the same; and, more important, that a quick "surface" rationale is not easily available.

The next two instances are even less of the surface than the ones just discussed. They both concern the "basic" arrangement of the sentence in terms of the position of the predicate and the nominals associated with it. According to Greenberg's generalizations (1966), the overwhelming majority of languages can be typed by their basic sentence pattern: VSO, SVO, or SOV. The first and third represent extreme types, in some respects in a "polar" or "mirror-image" relationship to each other. For example, VSO are almost always prepositional; SOV are almost always postpositional. VSO almost always have the relative clause after the head noun; SOV almost always have the clause before the head noun. And so on. But in the midst of this appealing symmetry, there is an element of discord: VSO languages almost always allow an SVO alternative; but "true" SOV languages do not allow OVS. Notice that this constraint is linked to the basic cast of the language and not to one or another of construction types. That is to say, anchoring the predicate in "first" position is not the same thing as anchoring the predicate in "last" position: if the types were truly symmetrical, it would suffice to view sentence organization as a-b-c or c-b-a, equivalently. But obviously, "first" does not equal "last".

Finally, transcending language-specific biases is the much greater than chance arrangement of (V) Agent (V) Patient (V), in which the parenthesized predicates (corresponding to Greenberg's types I, II, and III)

are intended to suggest the indifference of the case-relations to the position of the predicate. That is, looking again at the extreme types VSO and SOV, the most obvious argument against their mirror-image relationship is the fact that the agent nominal precedes the patient nominal in the unmarked order for both types: thus, the order Agent-Patient is not oriented with respect to the predicate. The orienting factor, it would appear, is time.

These universal aspects of sentence structure, taken together with the WH-phenomena which we considered in section II, suggest that the commonly accepted representation of the sentence as




is not in accord with the facts. The neutrality of the boundaries misrepresent the sentence as a Janus-construction, while there is almost nothing to substantiate this tacitly assumed symmetry. In order to incorporate the implications of section II (as well as the body of evidence cited in this section), we must decompose the notion "#" into some more basic elements -- among which would be included the notions "beginning" and "end". I am not sure what else this componential analysis would lead to, but it is not unlikely that other phrasal properties (not necessarily connected to the temporal slant of the phrase) might contribute to the content of the notion "boundary". This representation would parallel the convention in morphophonology which makes any morpheme-idiosyncratic information pertinent to the segmental behavior of the morpheme available to its segments. I.e., phonological rules are allowed to make reference to segments as constituents. Notice that "beginning" and "end", in contrast to uncommitted proposals like "#", are a move in the direction of accounting for the irrelevance of the notion "middle" to syntactic theory. This notion must be excluded in some way; yet, at the moment, all that

the constructs "beginning" and "end" do is make "middle" conspicuous by its absence.[5]

Once we entertain the time-slanted nature of the S-phrase, it is natural to speculate about other phrases and whether they should continue to be represented as indifferent to time. Considering only major constituents like V-phrases and N-phrases, I am inclined to reject their neutrality mostly on the basis of negative evidence -- although there are some indications here and there that a kind of symmetry is possible at this level, in contrast to the S-phrase. First, the negative evidence: there are instances in V-structure where an accusative complement can appear to the left or to the right of the nuclear V: e.g., HUNGARIAN, MANDARIN. But in these cases, it turns out there is sufficient evidence to argue for a basic positioning of the nominal from which the alternate order is derived. There is also usually a concomitant meaning-difference with the shift in position, e.g., with respect to definiteness or the generic reference of the nominal. Similarly, in N-phrases, attributive predicates can sometimes be found either to the left or to the right of the head -- but almost always one can argue for a basic position from which the restricted class should be derived. Articles and demonstratives also typically have a fixed position either to the left or to the right of the head, thus ruling out any symmetry. Genitive adjuncts, if not fixed, typically show differing treatment: cf. ENGLISH leg of the dog as opposed to dog's leg, where of points "back" to the nucleus, while 's points "forward".

There are two pieces of evidence that argue for neutrality of the N-phrase. One is language-specific, and is reportedly found in ATAYAL

---

[5] It may be that the notion "middle" will be excluded by a combination of constraints: e.g., that the linguistically significant "middle" of a phrase is its fixed nucleus, and that elements attaching to the phrase from external sources attach either to the nucleus or to the phrasal boundaries (cf. Schwartz, forthcoming).

(Egerod 1966). There, certain genitival adjuncts seem to appear freely either before or after the nominal nucleus: e.g., ziau na? psaniq "matter of taboo" alternating with psaniq na? ziau "taboo's matter" (where na? is of course held constant in contrast to the ENGLISH shift in genitive signs). On the basis of the limited corpus and analysis given in Egerod's study, I hesitate to say that the ATAYAL N-phrase basically has no time orientation: for example, the evidence available to me indicates that the possessive pronouns occur only to the right of the nucleus. At the moment, all I can say is that one would have to investigate a fuller range of nominal adjuncts before concluding that all structuring to the left of the nucleus can be translated in mirror-image fashion to the right.

This consideration is related to the second aspect of N-phrase symmetry: according to Greenberg, adjuncts like the demonstrative, numeral, and descriptive adjective are ordered systematically whether they precede or follow the head. However, the mirror-image relationship is not universal: "if they follow, the order is either the same [as that preceding the head] or its exact opposite". Consequently, the neutrality of N-phrase cannot be universal since (i) most languages choose to position these adjuncts basically either before or after the nucleus; (ii) the order preceding the nucleus is always DEM-NUM-ADJ while the order following may be either DEM-NUM-ADJ or ADJ-NUM-DEM. At the moment, I cannot determine whether the ATAYAL alternation conforms to these patterns. But even if it did, it would still not constitute a case of neutrality since it should turn out that the pre-nuclear order can only be DEM-NUM-ADJ, regardless of what the post-nuclear order might be.

Thus, it seems to me reasonable to regard all phrases as bounded asymmetrically "at root". One immediate consequence of this convention is to rule out the possibility of mirror-image movement rules (as

proposed in Langacker 1969b) -- assuming, that is, that most movements manifest either attraction to a nucleus or attachment to a boundary. Familiar instances of boundary-phenomena involve the finite verb being brought to clause-initial position, or WH-elements being fronted, or S-phrases being postponed to the end of the clause. In those cases, then, in which a basically clause-internal constituent is also found in either clause-initial or clause-final position, it would not be possible to relate the two surface variants as equivalent choices deriving from the base: that is to say, expressions like

(i) $[_S\#_b$ X NP Y$]$ $\Rightarrow$

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| 1+3 | 2 | $\emptyset$ | 4 |

(ii) $[_S$X NP Y $\#_e]$ $\Rightarrow$

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| 1 | $\emptyset$ | 3 | 2+4 |

could not be conflated as

(iii) $[_S\#$ X NP Y$]$ $\Rightarrow$

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| 1+3 | 2 | $\emptyset$ | 4 |

since "#" cannot be interpreted as "any #" -- in the way we allow, say, "NP" to mean "any NP" in various contexts.

As for attractions, the clearest cases involve the verb (the "main" verb or the tense-bearing auxiliary) -- for example, the placing of pronouns (in OLD ENGLISH, SAMOAN, the ROMANCE languages) "next to" the verb. What would obviate a mirror-image statement here is the basic asymmetry of the V-phrase itself since, in the main, its complements either precede or follow. Thus, for any one language, the statement is either (iv) or (v):

(iv) $[_S$X $[+@]$ Y NP Z$]$ $\Rightarrow$

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 1 | 2+4 | 3 | $\emptyset$ | 5 |

(v) $[_S$X NP Y $[+@]$ Z$]$ $\Rightarrow$

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 1 | $\emptyset$ | 3 | 2+4 | 5 |

The possibility of a mirror-image statement would arise in these cases only if the verb had some basically more central position, and would attract elements from either direction. For example, in FRENCH, subject je might be "brought into" the verbal complex (since it seems to behave phonologically the way me and le do as far as the survival of shwa in consonant clusters is concerned) by the same rule that brings post-verbal y and lui to the finite verb. I have not investigated this possibility but it seems unlikely that this behavior of the subject-pronoun, even if a cliticization, can be justified as a clearly syntactic movement of the same kind as that affecting y and the other pronominal complements.

A stronger argument for the mirror-image nature of pronominal attraction in FRENCH can be based on the so-called En-Avant phenomenon (Ruwet 1970). As the following sentences illustrate, the de-adjunct to the subject nominal can appear as en --

(i) la solution de ce problème est trouvée ....
the solution of this problem was discovered....

(ii) la solution en est trouvée ....
the solution of-it was discovered ....

(iii) la solution de ce problème vient d'être trouvée
the solution of this problem has just been discovered

(iv) la solution vient d'en être trouvée

(v) *la solution en vient d'être trouvée

and as the contrast between the grammaticality of (iv) and (v) indicates, the en must somehow be separated from its basic association with la solution. Since this en is hardly to be distinguished from the en related to postverbal de-nominals, it would appear that its incorporation into the verbal complex (along with y, le, me, te, etc.) could be managed by one and the same operation:

$$\begin{array}{cccccc} [_{S} & X & [+@] & Y & [pro] & Z\ ] \\ & 1 & 2 & 3 & 4 & 5 \\ & 1 & 4+2 & 3 & \emptyset & 5 \end{array} \quad \Rightarrow$$

where [+@] is the appropriate "attracting" property of the verb, and "pro" represents the class of clitics. If this rule is given mirror-image capacity, it will serve to affect "en-avant" as well as "en-arrière". However, this economy is more than offset by the need to specify that en-avant has an idiosyncratic relation to the copulative verbs (être, devenir), quite unlike the general behavior of en-arrière and the other post-verbal pronominals. Moreover, the "en-avant rule", if there is such a process in FRENCH, is not paralleled by the other ROMANCE languages which do obviously share with FRENCH the usual "attraction" of pronominal elements to certain verb forms.

Taken all together, the evidence for a mirror-image treatment of pronominal attraction in FRENCH is not very convincing. A more serious candidate is the gathering of clitics in SERBO-CROATIAN (Browne, 1967), in which more than pronominals are involved: i.e., negative and interrogative particles, and certain auxiliary verbs. Here, if anywhere, the notion "of whatever location" would seem relevant to a convergence of a variety of forms on "second position" in the clause (by "second position" is meant something like "after the first stressed word or phrase"). Again, "second position" is sufficiently off-center in the clause to allow most of the clitics to be reached by a leftward movement. The only particles not so located would be the negative and interrogative. In its full form da li, the interrogative particle occurs in clause-initial position. It would appear that a uniform treatment of these clitics would position them basically where they have their full forms: thus, for the interrogative particle, the following move seems necessary --

(a) da li VERB COMPLEMENT ?

(b) VERB li COMPLEMENT ?

But, it is not obvious to me that the (b) form derives from the (a) by a movement of the particle. Much more likely is, first, the establishment of the stressed constituent in clause-initial position, followed by

the attraction of the clitics. In that event, (b) derives from an intermediate stage like VERB da li COMPLEMENT? which resulted from a fronting of the stressed verb. That is to say, the da li/li alternation is indeterminate since da li will be in first position in its full stressed form unless displaced by some other stressed constituent -- whereupon it will, of necessity, be in "second position". So also, the fact that the negative particle ne is always before the finite verb renders its behavior uninformative as far as the issue here is concerned. In short, in SERBO-CROATIAN, as in FRENCH, only the post-verbal pronominal complement can compel a movement: "second position" for the negative, interrogative, and auxiliary clitics can be accounted for independently in a well-motivated way.

III

One more consequence of this proposal merits some consideration. If, as we have suggested, the sentence is to be given a time-slanted character even at the most abstract level of representation, then we are admitting certain structurally significant but semantically inconsequential elements into our conception of the natural language proposition. Such a concession means that we take the weaker of two positions under the assumption that all the elements appropriate to a semantic interpretation are present in the underlying representation: rather than impose an "all and only" constraint, we relax it to an "all" -- thereby allowing perhaps for redundancies, structurally necessary but semantically empty elements, and so on. Of course, a convention that imposes "beginning" and "end" in place of #'s adds nothing to the semantic content of particular representations of particular propositions of particular languages. The move therefore seems to have little consequence beyond underlining the temporal nature of human speech, and rendering the representation of sentences at any level a little less abstract.

But if we grant the underlying representation certain structural aspects which are unessential to the semantics of the sentence, we may also speculate about elements a bit more "constituent-like" than boundaries. For example, the range of relative clause types within the class $[_{NP}$ N S] (page 3) includes several which are characterized by the "invariant" pronominal suggested by the rubric that. This kind of pronominal link between the head and the clause is never found in any sub-type of the class $[_{NP}$ S N]. How can this idiosyncrasy of the type $[_{NP}$ N S] be accounted for? Notice that the ENGLISH that is not accidentally related to the class of pronominal roots in the language, and that languages unrelated to ENGLISH and the INDO-EUROPEAN family similarly make use of such a pronominal introduction: e.g., YUROK ku, SAMOAN o le, HEBREW še (related to ašer), MARGI ku ~ na ~ ŋu. This trait is in striking contrast to the other relative type, the pre-nucleus clause, which at best manifests an invariant adjunct marker not obviously related to the pronominals.

As remarked earlier, the term "invariant" was an expository convenience -- true enough for ENGLISH that, INDONESIAN yang, SWEDISH som, etc., but intended simply to distinguish between relative pronominal forms which reflected a clause-internal origin (for the most part, personal and interrogative pronouns) and the introducing pronominal which had nothing to do with the clause. The so-called "introducer", however, is by no means invariant in all its manifestations: in DUTCH, die and dat reflect the gender of the nucleus; in ARABIC a similar demonstrative form (appearing when the nucleus is definite) shows gender and number agreement; so also in MAASAI, although the gender- and number-agreeing "introducer" appears obligatorily in all relative constructions; in EWE, only number is shown -- while the nucleus appears without number.

In other words, this form cannot be dismissed as a marker (see Bach 1965) since it appears only in the "retrospective" type of relative

clause, and is sensitive to the nucleus in terms of gender and number: as more than one grammarian has remarked, the resemblance to the demonstratives and pronominals cannot be fortuitous. Considering the fact that the "prospective" relative clause has no such form, I am inclined to view this pronominal as recapitulatory -- in the manner of appositional noun clauses of the type the fact that S, the policy that S, the hypothesis that S, etc. In terms of a dependency representation, the basic structure would appear so:

In one sense, one could say that the pronominal introducer is acting as a "nominalizer" (cf. Benveniste 1957-8); but this label explains little except to point to the sometimes "nominal" character of the relative clause that falls to the right of the nucleus.

Pursuing this view one step further, we can see that the notion "complementizer" has little relevance after all. Quite aside from the suspect character of a class that subsumes disparates like for and that (Bresnan 1970), the empirical evidence in support of a phrasal node "Comp" is quite weak: subordinate clauses may have different diacritics of "dependency" -- but this observation in itself is no argument for a structural position and function called "Comp". At least in the construction considered in this paper, it would appear that the already available notion "Noun" suffices to account for the facts.

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